

95. A system according to claim 94, further comprising an aspirator for aspirating each droplet into the dispensing unit, whereupon each droplet is presented to the analyzer via the dispensing unit.

96. A system according to claim 94, wherein the analyzer is a mass spectrometer.

97. A system according to claim 96, further including a means for rapidly heating each droplet so as to form an ionized spray.

98. A system according to claim 96, further including a laser for rapidly heating each droplet so as to form an ionized spray.

99. A system according to claim 96, further including a means for applying a pneumatic force to each droplet so as to form an atomized spray.

100. A system according to claim 96, further including a piston for applying a pneumatic force to each droplet so as to form an atomized spray.

101. A system according to claim 96, further including a means for applying an explosive force to each droplet so as to form an atomized spray.

102. A system according to claim 96, further including a means for vibrating each droplet so as to form an atomized spray.

103. A system according to claim 96, further including a pulsed laser for focusing onto the surface in a proximity of the droplet so as to vibrate the droplet and cause atomization.

104. A system according to claim 96, further including a probe for vibrating the droplet so as to cause atomization, the probe moving rapidly back and forth in response to an alternating current.

105. A system according to claim 94, wherein the analyzer includes means for an optical analyzer.

106. A system according to claim 76, wherein the moving surface is a conveyor belt.

107. A system according to claim 76, wherein the moving surface is a fiber.

108. A system according to claim 76, wherein the moving surface is a timing belt.

109. A system according to claim 76, wherein the moving surface is unperforated.

110. A system according to claim 76, further comprising a laminate which is spooled onto the moving surface, such that each droplet is dispensed onto the laminate.

111. A system according to claim 76, wherein the laminate has at least one customized surface property from the group of surface properties consisting of cleanliness, biocompatibility, surface energy, binding affinity, porosity, chemical interaction, chemical addition, sample information encoding, and tracking.

112. A system according to claim 76, wherein each droplet has a volume smaller than one microliter.

113. A system for high throughput processing of a plurality of droplets, the system comprising:

- a) a moving surface;
- b) a laminate spooled to the moving surface;
- c) a dispenser, for dispensing each droplet onto the laminate; and
- d) a means for performing on each droplet at least one operation from the group of operations consisting of

mixing, diluting, concentrating, heating, cooling, humidifying, filtering, and analyzing.

114. A system according to claim 113 further including a first spool for spooling the laminate onto the moving surface.

115. A system according to claim 114 further including a second spool for spooling the laminate off of the moving surface.

116. A system according to claim 113, wherein the means for performing includes an environmental chamber, for subjecting each droplet dispensed on the laminate to a controlled environment.

117. A system according to claim 116, wherein the environmental chamber includes a delay line.

118. A system according to claim 117, wherein the controlled delay line includes an enclosed pulley system, such that the laminate travels back and forth in the environmental chamber.

119. A system according to claim 117, wherein the delay line includes a drum that rotates, such that the laminate travels around the drum in the environmental chamber.

120. A system according to claim 113, wherein the laminate has at least one customized surface property from the group of surface properties consisting of cleanliness, biocompatibility, surface energy, binding affinity, porosity, chemical interaction, chemical addition, sample information encoding, and tracking.

121. A system according to claim 113, wherein the laminate is magnetized.

122. A system according to claim 113, wherein the moving surface is a conveyor belt.

123. A system according to claim 113, wherein the moving surface is a timing belt.

124. A system according to claim 113, further including a drop sensor for detecting each droplet.

125. A system according to claim 113, wherein the moving surface moves continuously.

126. A system according to claim 113, wherein the moving surface moves in a discontinuous start/stop motion.

127. A system according to claim 113, wherein the laminate is unperforated.

128. A system according to claim 113, wherein the means for performing includes a mass spectrometer.

129. A method for high throughput processing of a plurality of droplets, the method comprising:

a) dispensing the plurality of droplets onto a substantially unperforated surface; and

b) moving the surface through a delay line such that each droplet hangs from the surface for at least a period of time, wherein the force acting to counter gravity is predominantly non-shearing.

130. A system for high throughput processing of a plurality of droplets, the system comprising:

a) a movable surface that is substantially unperforated;

b) a dispenser for dispensing each droplet onto the surface; and

c) a delay line such that each droplet hangs from the surface for a period of time, wherein the force acting to counter gravity is predominantly non-shearing.

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